

- 2 -

Amendments to Claims

1. (Currently Amended) A method of operating a fuel cell power plant having fuel cells each comprising a membrane electrode assembly including a proton exchange membrane with cathode and anode electrode catalysts on opposed surfaces thereof, a support plate, at least a substantial portion of which is hydrophilic, adjacent to each catalyst, and a hydrophilic porous water transport plate having passages for reactant gas and passages for coolant adjacent to each support plate, said method comprising:

during normal operation in which said fuel cell power plant supplies electric power to a load, maintaining a pressure of coolant in said coolant passages about 14 kPa - 21 kPa (2 psi - 3 psi) below the pressure of reactant gas in said reactant gas passages, thereby to allow only small volumes of water migrating ~~to or from~~ between said reactant gas passages and said support plates;

during a shutdown procedure, reducing the pressure differential between the coolant and reactant gas so that said support plates are filled with coolant to about 50% - 80% of their coolant capacity; and

finally, draining water from the coolant passages. [.]

2. (Original) A method according to claim 1 wherein:  
said support plates are filled with coolant to about 70% of their coolant capacity.

3. (Original) A method according to claim 1 wherein:  
said support plates are filled with coolant to about 50% of their coolant capacity.

- 3 -

4. (Original) A method according to claim 1 comprising:  
during said shutdown procedure, adjusting the pressure of coolant in said water transport plates to between 3 kPa (0.44 psi) and 6.5 kPa (0.94 psi) below the pressure of reactant gases in said water transport plate.

5. (Original) A method according to claim 4 wherein said pressure differential is adjusted to between about 4 kPa (0.58 psi) and 5.2 kPa ( 0.75 psi).

6. (Currently Amended) A method according to claim 3 wherein said pressure differential is adjusted to ~~between~~ about 4.8 kPa (0.7 psi).

7. (Currently Amended) A method according to claim 1, further comprising:

providing in said fuel cells, support plates which have substantially uniformly hydrophobic regions in a hydrophilic substrate to cause said substrate to  
5 be 10% - 40% hydrophobic and 60% - 90% hydrophilic.

8. (Original) A method according to claim 6 wherein:  
said step of providing causes said substrate to be about 30% hydrophobic and about 70% hydrophilic.

Respectfully submitted,



M. P. Williams

Attorney of Record

Voice: 860-649-0305

Fax: 860-649-1385

210 Main Street  
Manchester, CT 06040

Date: August 11, 2004